

# Администрирование сетевых подсистем

## Лабораторная работа №4

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26 ноября 2025

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## Цель работы

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Приобретение практических навыков по установке, настройке и анализу работы HTTP-сервера Apache, а также конфигурированию виртуального хостинга и подготовке окружения для автоматизации развёртывания.

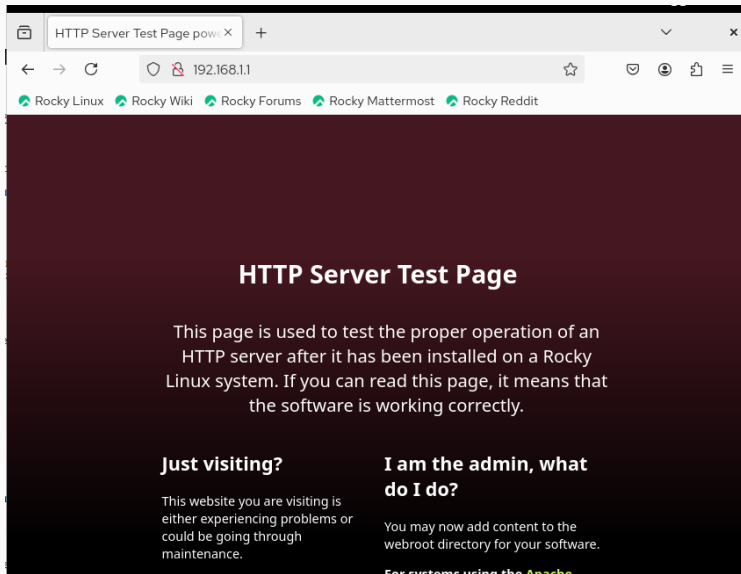
## Ход выполнения

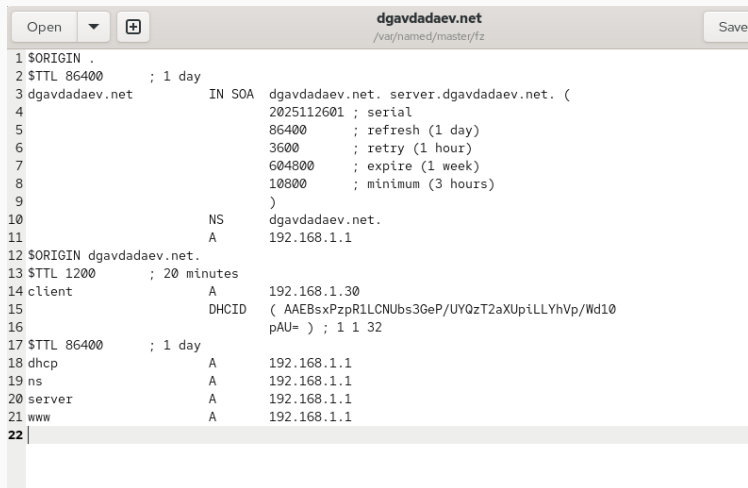
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```
Installed:
  apr-1.7.5-2.el10.x86_64          apr-util-1.6.3-21.el10.x86_64      apr-util-lmdb-1.6.3-21.el10.x86_64
  apr-util-openssl-1.6.3-21.el10.x86_64  httpd-2.4.63-4.el10.x86_64      httpd-core-2.4.63-4.el10.x86_64
  httpd-filesystem-2.4.63-4.el10.noarch  httpd-manual-2.4.63-4.el10.noarch  httpd-tools-2.4.63-4.el10.x86_64
  mod_fcgid-2.3.9-35.el10.x86_64        mod_http2-2.0.29-3.el10.x86_64    mod_lua-2.4.63-4.el10.x86_64
  mod_ssl-1:2.4.63-4.el10.x86_64        rocky-logos-httpd-100.4-7.el10.noarch

Complete!
[root@server.dgavdadaev.net ~]#
[root@server.dgavdadaev.net ~]# ls /etc/httpd/conf
httpd.conf  magic
[root@server.dgavdadaev.net ~]# ls /etc/httpd/conf.d/
autoindex.conf  fcgid.conf  manual.conf  README  ssl.conf  userdir.conf  welcome.conf
[root@server.dgavdadaev.net ~]#
```

Рис. 1: Установка пакетов Apache

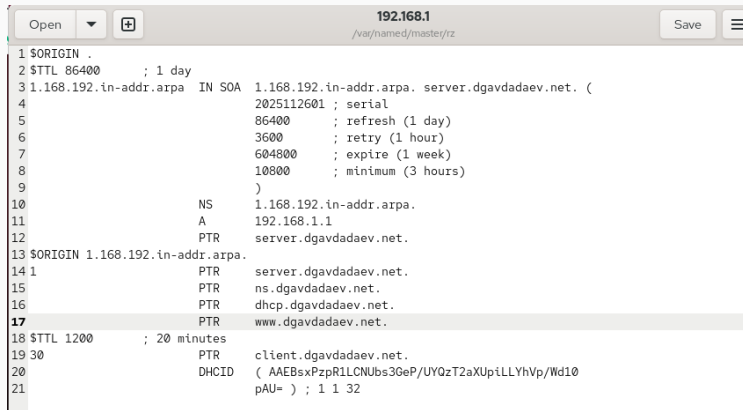




The screenshot shows a text editor window titled "dgavdadaev.net" with a file path of "/var/named/master/fz". The editor contains a DNS zone file for "dgavdadaev.net". The file is numbered 1 through 22 on the left margin. The content includes SOA, NS, and A records, as well as DHCP and NS server definitions.

```
1 $ORIGIN .
2 $TTL 86400      ; 1 day
3 dgavdadaev.net      IN SOA  dgavdadaev.net. server.dgavdadaev.net. (
4                          2025112601 ; serial
5                          86400      ; refresh (1 day)
6                          3600       ; retry (1 hour)
7                          604800     ; expire (1 week)
8                          10800      ; minimum (3 hours)
9                          )
10                     NS      dgavdadaev.net.
11                     A        192.168.1.1
12 $ORIGIN dgavdadaev.net.
13 $TTL 1200      ; 20 minutes
14 client         A          192.168.1.30
15                DHCPID    ( AAEBsxPzpR1LCNUbs3GeP/UYQzT2aXUpiLLYhVp/Wd10
16                pAU= ) ; 1 1 32
17 $TTL 86400     ; 1 day
18 dhcp           A          192.168.1.1
19 ns             A          192.168.1.1
20 server         A          192.168.1.1
21 www           A          192.168.1.1
22
```

Рис. 4: Файл прямой зоны



```
1 $ORIGIN .
2 $TTL 86400          ; 1 day
3 1.168.192.in-addr.arpa  IN SOA  1.168.192.in-addr.arpa. server.dgavdadaev.net. (
4                                2025112601 ; serial
5                                86400      ; refresh (1 day)
6                                3600       ; retry (1 hour)
7                                604800     ; expire (1 week)
8                                10800      ; minimum (3 hours)
9                                )
10                             NS      1.168.192.in-addr.arpa.
11                             A       192.168.1.1
12                             PTR     server.dgavdadaev.net.
13 $ORIGIN 1.168.192.in-addr.arpa.
14 1                             PTR     server.dgavdadaev.net.
15                             PTR     ns.dgavdadaev.net.
16                             PTR     dhcp.dgavdadaev.net.
17                             PTR     www.dgavdadaev.net.
18 $TTL 1200           ; 20 minutes
19 30                     PTR     client.dgavdadaev.net.
20                       DHCID    ( AAEBsxPzpR1LCNUbs3GeP/UYQzT2aXUpiLLYhVp/Wd10
21                       pAU= ) ; 1 1 32
```

Рис. 5: Файл обратной зоны





Рис. 6: Конфигурация server



The image shows a text editor window with a title bar that reads "www.dgavdadaev.net.conf" and a subtitle "/etc/httpd/conf.d". The editor contains the following XML configuration for a VirtualHost:

```
1 <VirtualHost *:80>
2     ServerAdmin webmaster@dgavdadaev.net
3     DocumentRoot /var/www/html/www.dgavdadaev.net
4     ServerName www.dgavdadaev.net
5     ErrorLog logs/www.dgavdadaev.net-error.log
6     CustomLog logs/www.dgavdadaev.net-access_log common
7 </VirtualHost>
```

Рис. 7: Конфигурация www

```
[root@server.dgavdadaev.net conf.d]#  
[root@server.dgavdadaev.net conf.d]# cd /var/www/html/  
[root@server.dgavdadaev.net html]# mkdir server.dgavdadaev.net  
[root@server.dgavdadaev.net html]# cd server.dgavdadaev.net/  
[root@server.dgavdadaev.net server.dgavdadaev.net]# touch index.html  
[root@server.dgavdadaev.net server.dgavdadaev.net]# echo "Welcome to the server.dgavdadaev.net server." > index.html  
  
[root@server.dgavdadaev.net server.dgavdadaev.net]# cd ..  
[root@server.dgavdadaev.net html]# mkdir www.dgavdadaev.net  
[root@server.dgavdadaev.net html]# cd www.dgavdadaev.net/  
[root@server.dgavdadaev.net www.dgavdadaev.net]# echo "Welcome to the www.dgavdadaev.net server." > index.html  
[root@server.dgavdadaev.net www.dgavdadaev.net]# chown -R apache:apache /var/www  
[root@server.dgavdadaev.net www.dgavdadaev.net]# restorecon -vR /etc  
Relabeled /etc/NetworkManager/system-connections/eth1.nmconnection from unconfined_u:object_r:user_tmp_t:s0 to unconfined_u:object_r:NetworkManager_etc_rw_t:s0  
Relabeled /etc/named.conf from unconfined_u:object_r:etc_t:s0 to unconfined_u:object_r:named_conf_t:s0  
[root@server.dgavdadaev.net www.dgavdadaev.net]# restorecon -vR /var/named/  
[root@server.dgavdadaev.net www.dgavdadaev.net]# restorecon -vR /var/www/  
[root@server.dgavdadaev.net www.dgavdadaev.net]# systemctl restart httpd  
[root@server.dgavdadaev.net www.dgavdadaev.net]#
```

Рис. 8: Каталоги веб-контента

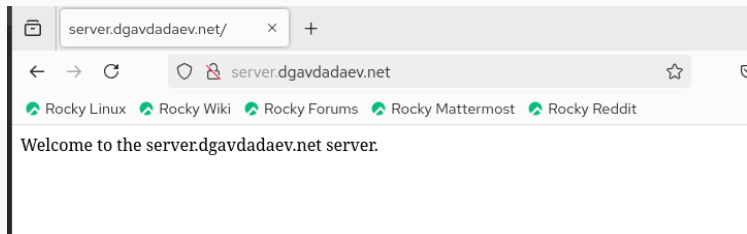
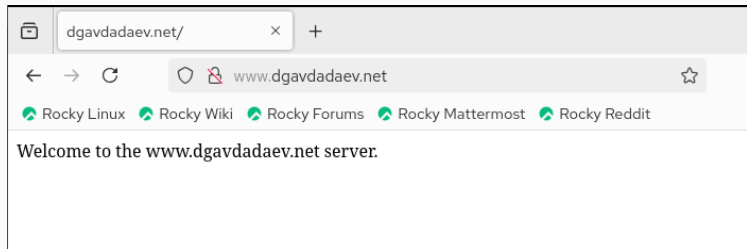


Рис. 9: server.dgavdadaev.net



```
[root@server.dgavdadaev.net www.dgavdadaev.net]#  
[root@server.dgavdadaev.net www.dgavdadaev.net]# cd /vagrant/provision/server/  
[root@server.dgavdadaev.net server]# mkdir -p /vagrant/provision/server/http/etc/httpd/conf.d  
[root@server.dgavdadaev.net server]# mkdir -p /vagrant/provision/server/http/var/www/html  
[root@server.dgavdadaev.net server]# cp -R /etc/httpd/conf.d/* /vagrant/provision/server/http/etc/httpd/conf.d  
[root@server.dgavdadaev.net server]# cp -R /var/www/html/* /vagrant/provision/server/http/var/www/html  
[root@server.dgavdadaev.net server]#  
[root@server.dgavdadaev.net server]# cp -R /var/named/* /vagrant/provision/server/dns/var/named/  
cp: overwrite '/vagrant/provision/server/dns/var/named/data/named.run'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/dynamic/managed-keys.bind.jnl'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/dynamic/managed-keys.bind'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/master/rz/192.168.1'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/master/fz/dgavdadaev.net'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/named.ca'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/named.empty'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/named.localhost'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/named.loopback'? y  
[root@server.dgavdadaev.net server]#
```

Рис. 11: Копирование конфигураций

```
1  #!/bin/bash
2  echo "Provisioning script $0"
3  echo "Install needed packages"
4  dnf -y groupinstall "Basic Web Server"
5  echo "Copy configuration files"
6  cp -R /vagrant/provision/server/http/etc/httpd/* /etc/httpd
7  cp -R /vagrant/provision/server/http/var/www/* /var/www
8  chown -R apache:apache /var/www
9  restorecon -vR /etc
10 restorecon -vR /var/www
11 echo "Configure firewall"
12 firewall-cmd --add-service=http
13 firewall-cmd --add-service=http --permanent
14 echo "Start http service"
15 systemctl enable httpd
16 systemctl start httpd
17
```

Рис. 12: Содержимое http.sh

## Выводы

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- Установлен и настроен HTTP-сервер Apache.
- Настроены файлы конфигурации и межсетевой экран.
- Проведён анализ логов и тестирование работы сервера.
- Реализован виртуальный хостинг для двух доменных имён.
- Подготовлена структура для автоматизированного provisioning в Vagrant.
- Созданы тестовые веб-страницы и проверена корректность их работы.